

Date: Monday, 9/11/2006 3:43:53 PM
User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 02.250 SUPPORT
Job Number : 28482
Estimate Number : 11057
P.O. Number : *N/A* Part Number : D28911
This Issue : 9/11/2006 S.O. No. : *N/A* Drawing Number : D2891 REV A1
Prsht Rev. : NC Project Number : N/A
First Issue : *N/A* Type : PURCHASED PARTS Drawing Revision : A1
Previous Run : 28388 Material : *N/A*
Due Date : 9/30/2006 Qty: *8* Um: Each
Written By : *[Signature]*
Checked & Approved By : *[Signature] 06 09.12*
Comment : Est. C 08.11.26 Added P/O KJ

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 PG PURCHASING



Comment: PURCHASING

Issue P/O: *2008*

Description: D6104-003

Material: 17-4 PH SS (AMS 5643 OR AISI 630) as per Dwg D6104

Material release note required.

Blank size makes (2) D2891-1

2.0 D6104003 17-4 SS Roundbar 3.25"OD



Comment: Qty.: 1.0000 Each(s)/Unit Total : 6.0000 Each(s)

Support 2.25 dia

3.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Recieve & Inspect for Transit Damage

Ensure Material Release Note is attached

4.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI LATHE

Turn blank for Haas as per Folio FA046

5.0 QC1 INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: Date: 06/10/10

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 9/11/2006 3:43:54 PM
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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 02.250 SUPPORT

Job Number: 28482

Part Number: D28911

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

HAAS1

HAAS CNC VERTICAL MACHINING #1



Comment: HAAS

Machine as per Folio FA046
Tumble & Deburr

ref 06/10/06

4

7.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

ref 06/10/06

4

8.0

QC8

SECOND CHECK



Comment: SECOND CHECK

J.L

06/10/06

4

9.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.2) as per QSI 005 4.3

FL 06 10 06

(4)

10.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

PB 06/10/10

(4)

11.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: *ST/600*

PB 06/10/10

(4)

12.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

06/10/10

Job Completion



W 06.10.10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD			Work Order:	28482
Description: Ø2.250 Support			Part Number:	D2891-1
Inspection Dwg: D2891 Rev. A1			Page 1 of 1	

Inspect dimensions highlighted on inspection sheet drawing D2891 Rev.A1/DSK076 Rev.A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
Lathe Section									
A	2.274	2.279		2.279	2.279	2.279	2.279	BSG	06-10-06
B	3.702	3.722		3.712	3.712	3.712	3.712		
C	2.564	2.584		2.576	2.576	2.576	2.576		
D	0.718	0.738		.728	.728	.728	.728		
E	0.090	0.110		.098	.100	.098	.098		
F	2.464	2.484		2.476	2.476	2.476	2.476		
G	2.029	2.049		2.035	2.035	2.035	2.035		
H	2.964	2.984		2.976	2.976	2.976	2.976		
I	0.913	0.933		.923	.923	.923	.923		
J	0.022	0.042		.032	.032	.032	.032		
K	0.090	0.110		.097	.097	.097	.097		
L									
HAAS Section									
AA	0.188	0.193	DT8706	0.188	0.188	0.188	0.188		
AB	0.240	0.260		0.251	0.251	0.250	0.253		
AC	0.115	0.150		0.125	0.125	0.126	0.126		
AD	0.040	0.060		0.053	0.053	0.051	0.050		
AE	0.010	0.020		0.010	0.010	0.010	0.010		
AF	0.240	0.260		0.250	0.250	0.250	0.250		
AG	0.290	0.310		0.305	0.306	0.305	0.303		
AH	0.115	0.150		0.139	0.138	0.138	0.138		
AI	0.454	0.474		0.465	0.467	0.464	0.459		
AJ	2.779	2.789		2.784	2.783	2.784	2.784		
AK	0.240	0.260		0.250	0.250	0.250	0.250		
AL	1.002	1.042		1.040	1.042	1.042	1.042		
AM	0.053	0.073		0.063	0.063	0.063	0.063		
AN	0.257	0.262	DT8888	0.258	0.258	0.258	0.258		
AO	1.663	1.683		1.676	1.678	1.677	1.673		
AP	0.053	0.073		0.060	0.060	0.060	0.060		
AQ	0.022	0.042		0.032	0.032	0.032	0.032		
AR									
AS									
Accept/Reject									

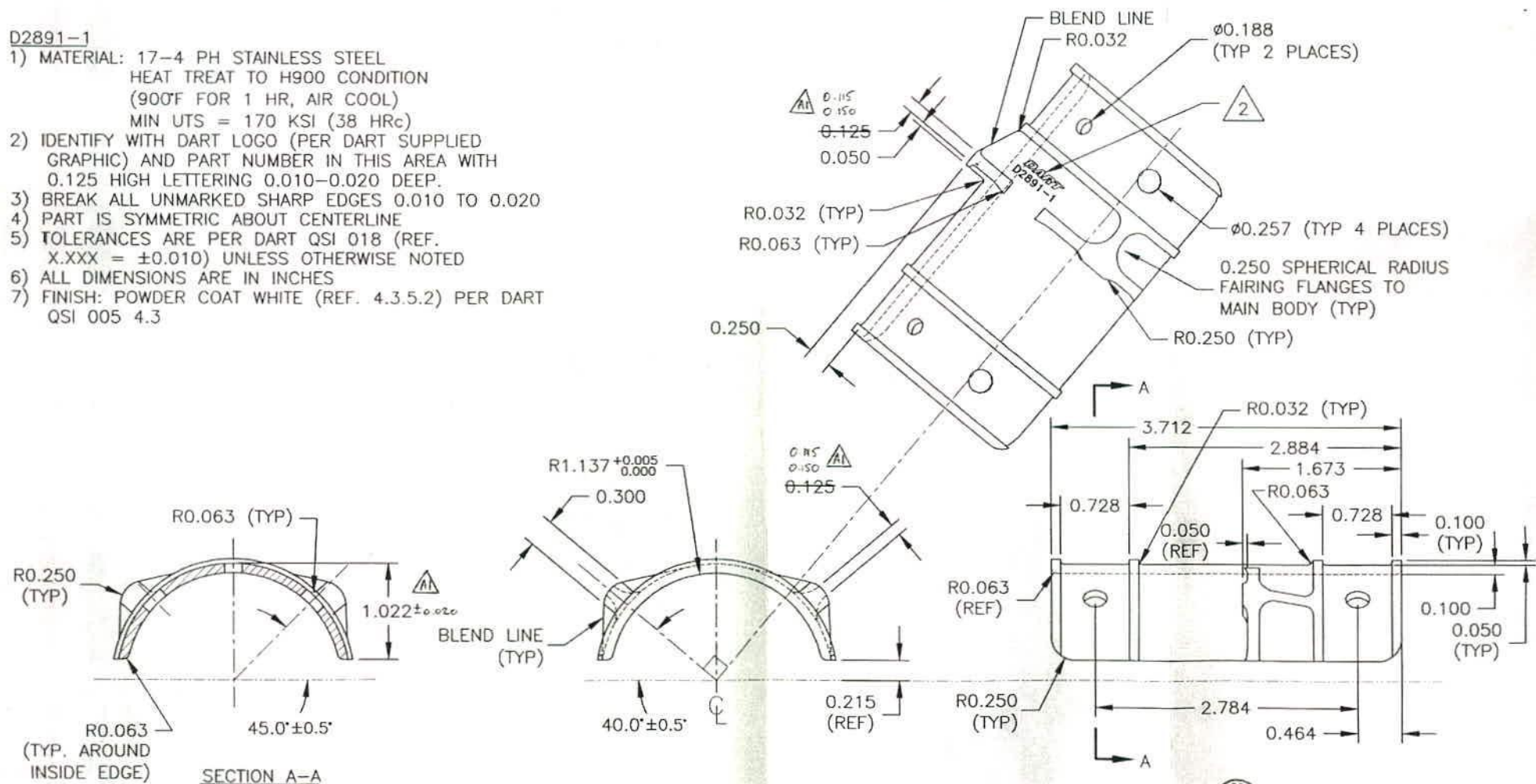
Measured by:	BSG / MS / JML
Date:	06/10/06

Audited by:	JL
Date:	06/10/06

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	J

D2891-1

- 1) MATERIAL: 17-4 PH STAINLESS STEEL
HEAT TREAT TO H900 CONDITION
(900°F FOR 1 HR, AIR COOL)
MIN UTS = 170 KSI (38 HRC)
- 2) IDENTIFY WITH DART LOGO (PER DART SUPPLIED GRAPHIC) AND PART NUMBER IN THIS AREA WITH 0.125 HIGH LETTERING 0.010-0.020 DEEP.
- 3) BREAK ALL UNMARKED SHARP EDGES 0.010 TO 0.020
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) TOLERANCES ARE PER DART QSI 018 (REF. X.XXX = ± 0.010) UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES
- 7) FINISH: POWDER COAT WHITE (REF. 4.3.5.2) PER DART QSI 005 4.3



NO. 28482
 WORK ORDER
 RETURN TO
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 SUBJECT TO AMENDMENT
 WITHOUT NOTICE

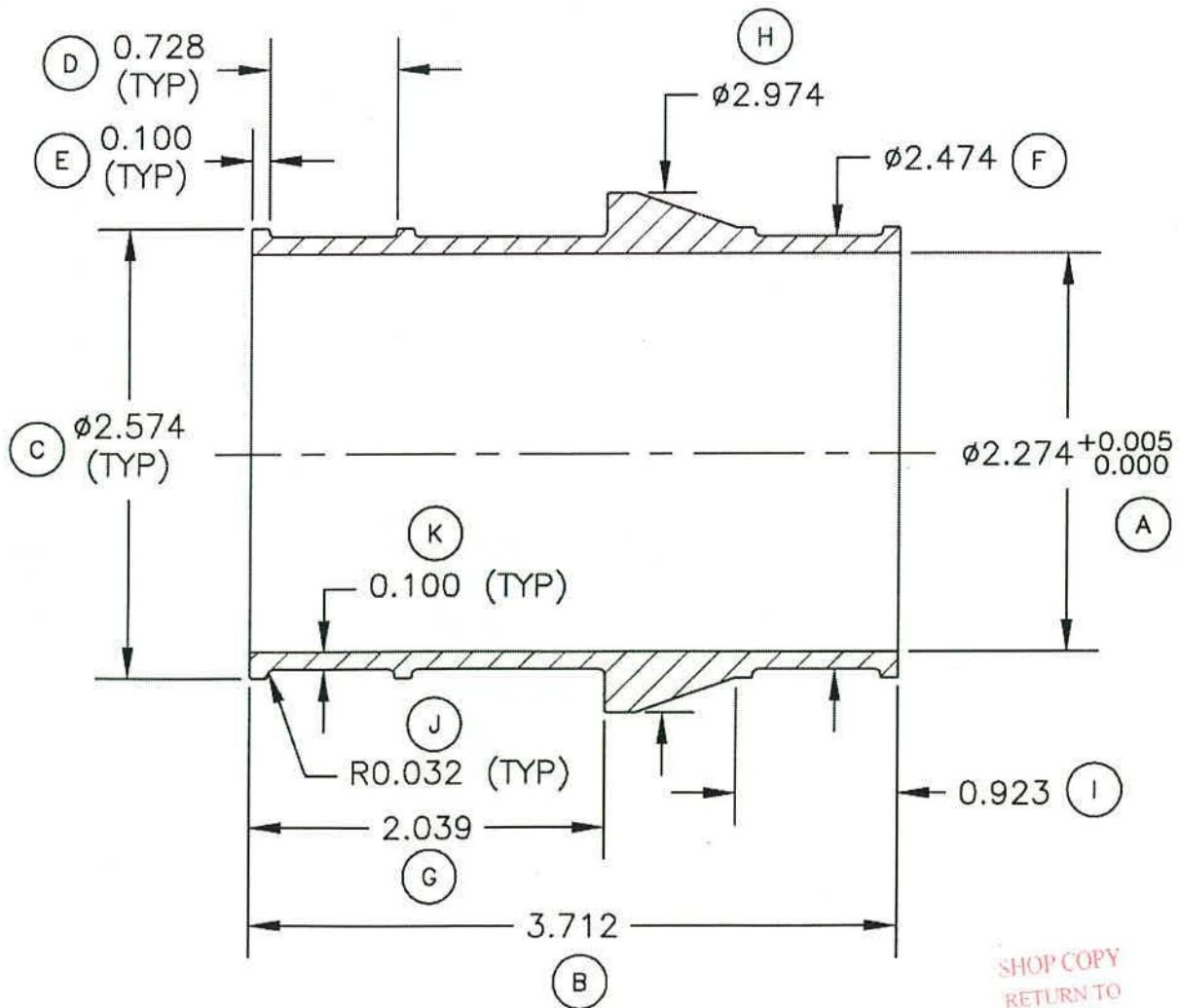
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AI	02.01.23	UPDATE DIMS AS MANUFACTURED
A	00.11.17	NEW ISSUE
DESIGN	CP	DART DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D2891
DATE	00.11.17	TITLE #2.250 SUPPORT
		REV. A SHEET 1 OF 1 SCALE 1:1

DART

DESIGN RT	DRAWN BY RT	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED CH	APPROVED CH	DRAWING NO. DSK 076	REV. A SHEET 1 OF 1
DATE 03.05.20		TITLE TURNING DETAIL FOR D2891-1	SCALE 1:1
A	03.05.20	NEW ISSUE	

RELEASED
03.07.01D2891-1 TURNING DETAIL

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M: 1017

WORK ORDER : U15749

COPPER AND BRASS SALES

MATERIAL TYPE STAINLESS STEEL

AISI SERIES
200 300 400
AND
PRECIPIT HARDENING GRADES

"WARNING"

INHALATION OF FUMES, FRESHLY GENERATED BY THE WELDING OF STAINLESS STEEL CONTAINING ONE OR MORE OF THE FOLLOWING INGREDIENTS, ZINC, MAGNESIUM OR COPPER, ARE KNOWN TO CAUSE METAL FUME FEVER. INHALATION OF DUST OR FUME FROM STAINLESS STEEL CONTAINING ONE OR MORE OF THE FOLLOWING INGREDIENTS, ALUMINUM, IRON, MANGANESE, SELENIUM, OR TIN, HAS ALSO BEEN REPORTED TO CAUSE METAL FUME FEVER AND MAY CAUSE IRRITATION TO THE RESPIRATORY TRACT AND/OR AGGRAVATE PRE-EXISTING CONDITIONS. TARGET ORGAN IS PRIMARILY THE LUNG.

THIS PRODUCT CONTAINS CHROMIUM. EXPOSURE TO CHROMIUM DUST OR FUME MAY CAUSE METAL FUME FEVER WITH FLU-LIKE SYMPTOMS AND KIDNEY AND LIVER DAMAGE. UNDER HIGH TEMPERATURES, HEXAVALENT CHROMIUM MAY BE PRODUCED, IF IN THE INSOLUBLE FORM, IT IS A CONFIRMED HUMAN CARCINOGEN. THIS PRODUCT MAY ALSO CONTAIN NICKEL AND COBALT. INHALATION OF NICKEL OR COBALT DUST OR FUME MAY RESULT IN INFLAMMATION OF THE RESPIRATORY TRACT. NICKEL AND COBALT HAVE BEEN IDENTIFIED AS POTENTIAL HUMAN CARCINOGENS.

IF COATED WITH OIL, MAY CAUSE SKIN IRRITATION/DERMATITIS BY CONTACT. WELDING FUME IS LISTED AS A POSSIBLE CARCINOGENIC TO HUMANS.

READ THE STAINLESS STEEL MATERIAL SAFETY DATA SHEET (MSDS) ON FILE WITH YOUR EMPLOYER BEFORE WORKING WITH THIS MATERIAL

- * If processing or recycling produces particulate, use exhaust ventilation or other controls designed to prevent exposure to workers. Examples of such activities include melting, welding, grinding, abrasive sawing, sanding and polishing. Any activity which abrades the surface of this material can generate airborne particulate. Use respiratory protection (P100, quantitative fit testing required) if exposures exceed the permissible limits.
- * The Occupational Safety and Health Administration (OSHA) have set mandatory limits on occupational exposures.
- * Stainless Steel in solid form and as contained in finished products presents no special health risk.
- * Sold for manufacturing purposes only. This product can be recycled; contact your sales representative.

The Occupational Safety and Health Administration require employers to provide training in the proper use of this product.

For additional information, call or write to Copper and Brass Sales, 22355 West Eleven Mile Road, Southfield, MI 48033, telephone 248-233-5600, or visit our web site @ www.copperandbrass.com.

Crucible
Specialty Metals
A Division of Crucible Materials Corporation

P.O. BOX 977
SYRACUSE
NEW YORK 13201

CERTIFICATE OF TEST

COPPER & BRASS SALES INC
ATTN: ACCOUNTS PAYABLE
22355 WEST ELEVEN MILE RD
SOUTHFIELD MI 48034

SHIP TO
COPPER & BRASS SALES
6355 E. DAVISON
DETROIT, MICHIGAN
48212-1499

OUR ORDER NO.
PJ-12987-6-C

DATE
08/09/06

CUSTOMER ORDER # & DATE
CK4179

CUSTOMER REQ. #

DISTRICT

B PARSONS

SHIPPED FROM

SYRACUSE

DESCRIPTION OF MATERIAL

SIZE
3.250 RD

CRD 17CR-ANI T&B ANN (P/N 408406-7)
ASTM-A564-04 TYPE 430 AMS-56430 AMS-2303E
DFARS 252.225.7014 & 225.7002-3 (B)(1) COMPLIANT

CHEMICAL ANALYSIS

HEAT NO

A17799

C
.041

MN
.55

P
.027

S
.020

SI
.55

NI
4.30

CR
15.40

MO
.090

CU
3.16

CB
.25

TA
.007

MECHANICAL PROPERTIES

QUANTITY

HEAT NO.

1835 & A17799

TENSILE PSI YLD.2XPSI XENONG4D RED/AREAZ

HARDNESS
BHN 355

CAPABILITY PHYSICALS AFTER 500 DEG. F. - 1 HR. AIRCOOL:
199,990 175,630 16.1 53.3

BHN 401

MACRO TEST OK
FERRITE 5 %
MAGNAFLUX F/S = 0/0

MATERIAL FREE FROM MERCURY CONTAMINATION AT TIME OF SHIPMENT
NO WELD REPAIR PERFORMED
MATERIAL MELTED IN U.S.A.

THANK YOU FOR SELECTING A QUALITY PRODUCT
MANUFACTURED BY THE EMPLOYEES OF CRUCIBLE SPECIALTY METALS IN

THE ABOVE MATERIAL WAS MANUFACTURED AND TESTED IN ACCORDANCE
WITH ABOVE SPECIFICATIONS AND IS IN CONFORMANCE WITH THE
SPECIFICATION REQUIREMENTS
CRUCIBLE MATERIALS CORPORATION
ACTING BY AND THROUGH ITS SPECIALTY METALS DIVISION

SWORN TO AND SUBSCRIBED BEFORE ME THIS

DAY OF _____, 20

CERTIFIED